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Report of a Nutrition Demonstration Program In Ottawa County, Michigan

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Epidemiological surveys constitute one phase of a comprehensive public health nutrition program, which also should include nutrition education and training, and corrective and preventive services. Many of the nutrition activities undertaken up to this study, however, have centered largely around nutrition surveys. The teams organized by the Nutrition Branch of the Public Health Service have concentrated on surveys of the nutritional status of various population groups. While surveys of nutritional status are useful and desirable from an epidemiological point of view and serve to stimulate local interest in the field of nutrition, they can make only a limited contribution toward the realization of the long-range objective—establishment of nutrition control programs on a par with other aspects of a health department's responsibilities.

Therefore, it seemed desirable for a nutrition unit to develop a pattern for a unified public health nutrition program and to determine how it could be adapted to a specific health department program. Planned as one part of the program, the survey would supply epidemiological data which would be used in further developing the program. Such a project was worked out by the nutrition unit of the Public Health Service assigned to work in Michigan. In the spring of 1946, as the result of cooperative planning between the unit and the State health department, an effort was made to broaden the area of nutrition activities for which the unit was responsible. The broad objectives were to investigate and demonstrate a comprehensive public health approach to the nutritional problems of a community and to incorporate nutrition programs in local health departments on a basis similar to traditional programs in communicable disease, venereal disease, tuberculosis control, and maternal and child

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health. With these purposes in mind, plans were made, in cooperation with the Michigan State Department of Health and the Ottawa County Health Department, to establish a public health nutrition program in Ottawa County.

Ottawa County is located on the shore of Lake Michigan and includes the cities of Holland, Grand Haven, and Zeeland. The area of the county is 564 square miles, and the population density is 113.2 persons per square mile. In 1946 there was an estimated population of 63,800 persons, of whom 44 percent were considered urban and 56 percent rural. The urban population is engaged principally in small industries, and the rural population in agricultural pursuits.

The Ottawa County Health Department was staffed, in 1946, by a full-time health officer, eight public health nurses, one full-time dentist who served the county's school children, one sanitarian, and three clerks.

It was agreed that the program was to be a joint cooperative project of the Ottawa County Health Department and the nutrition unit of the Public Health Service. The program consisted essentially of three phases: (1) epidemiological surveys; (2) in-service training of the health department staff; and (3) preventive and corrective measures, through popular education and community services.

The following specific purposes were envisioned for the Ottawa County nutrition program:

1. To determine whether practical nutritional epidemiology could be obtained for an entire county of moderate size by a small special unit, which a State health department might be capable of financing, and which would work in close cooperation with a moderate-sized local health department.

2. To develop an active program of in-service training for a local health department staff in order to create sustained interest in nutrition which would be carried over to the general work of the department.

3. To demonstrate that active participation by local public health nurses in the epidemiological phase of the program can be added to the nurses' duties without unduly disrupting their general program.

4. To indicate that specific nutritional deficiencies and other physical defects discovered during nutritional survey examinations can be included in the case loads of public health nurses until corrective measures have been obtained.

5. To demonstrate the necessity for continuing, after the epidemiological phase, the in-service training and the provision of special assistance for unusual nutritional cases and problems in order to maintain nutrition as an integral part of the local public health program.

6. To show how the utilization of every available education medium, such as the press, radio, schools, civic clubs, and other general educational facilities and methods, can contribute to the improvement of nutritional well-being.

7. To demonstrate that nutritional epidemiological units can include mass blood glucose determinations as a practical preliminary screening procedure for diabetes mellitus.

8. To indicate how an analysis of statistics on physical findings, dietary records, and laboratory data accumulated in nutrition surveys may contribute toward the knowledge of the significance of this information.

9. To demonstrate that a public health nurse with training in nutrition can work as a field nurse with a local health department and develop new techniques to be used in home visits to help improve the family's nutrition.

10. To demonstrate that a public health nutritionist can be a valuable addition to a county health department by providing continuous in-service training for the staff, by offering consultation on special nutritional problems, by participating in the clinics, and by contributing to long-range and continuing nutrition education programs.

Preliminary Plans and Arrangements

In November 1946, the Public Health Service nutrition unit joined the staff of the Ottawa County Health Department, with headquarters in Grand Haven, and plans were made to implement the program previously agreed upon. A qualified biostatistician selected a representative sample of the population of the area for the nutrition survey. It was decided to study 1,000 families in Ottawa County—450 families from the larger urban areas and 550 from the rural areas of the county.

Since this program was to become an integral part of the activities of the county health department, the selection of survey clinic locations was left to the health officer. Fourteen clinic locations were arranged in the county for maximum convenience to the families invited to attend. Clinics were so arranged that no family need travel more than 5 miles to attend a session.

Since the county health department desired to keep a permanent record of the findings for every individual who participated in the survey, a new set of forms was designed for this purpose. A set of three 5 by 8 card forms was used for recording physical findings, dietary record analyses, and laboratory data, respectively. The three cards could be stapled together to form a permanent individual

record or be used as reference by field nurses in their home visits to the participating families.

The Ottawa County Medical Society approved the purposes and plans of the program. The Society suggested that the families examined in the survey be asked to indicate their family physician in order to enable the health department to send a complete report of the findings to the designated family physician. This was provided for by forwarding a copy of the forms prepared for the health department to the family physician.

The date for the beginning of the survey was set for April 1, 1947, and clinics were scheduled from April 1947 to March 1948. An attempt was made to obtain samples of comparable groups of urban and rural families during each of the seasons of the year.

Before the survey was begun, a series of in-service educational classes was held for the county health department staff. The classes were conducted by the unit's public health nurse and nutritionist, with some help from the medical officer. These sessions were designed to acquaint the health department staff with the latest available nutrition information and to discuss problems which might arise in inviting selected families to the survey clinics.

County newspapers aided in the preliminary planning by describing and publicizing the program, while ministers in the rural churches offered valuable assistance in obtaining the cooperation of their congregations. In addition, many talks about the program were given by staff members of the health department as well as by the staff of the nutrition unit.

Methods of Conducting Survey

The Ottawa County survey started in April 1947. Invitations to attend the nutrition clinics were extended to the people in the selected sample by the county health department nurses. They were assisted in this by the Public Health Service nutrition unit nurse.

The county health department nurses made 14,056 home visits during 1947. Of this figure, 1,144 visits were made to invite families to the nutrition clinics. Thus, these invitations accounted for 8.1 percent of the nurses' general case load, exclusive of the number of calls made for follow-up purposes.

Considerable variation was noted in the response to the invitations to attend the nutrition clinics. The different backgrounds and customs of the people visited or the rapport established between the nurse and the family may account for the variations. It was obvious that the nurse's interest in the nutrition program and her approach to the family had a considerable bearing on her ability to obtain the family's cooperation. When the nurse was able to win the family's confidence

and give a good explanation of the program, the response was excellent. On the other hand, if the nurse evidenced little interest in the program, she failed to win confidence and had greater difficulty in getting appointments filled.

Survey clinics were conducted on Tuesday and Thursday of each week; morning, afternoon, and evening sessions were held in most areas to offer maximum convenience for the selected families.

The clinic teams were composed of a physician, nutritionist, laboratory technician, public health nurse, and clerk. The clerk acted as receptionist, kept records, and took height and weight measurements of the clinic subjects. The unit's public health nurse served as clinic nurse and was responsible for the general operation of the clinic.

Specimens of fingertip blood from each subject were collected by the laboratory technician. The following laboratory determinations were made: (a) plasma protein, (b) serum vitamin A, (c) serum carotene, (d) serum ascorbic acid, (e) serum phosphatase for subjects under 16 years of age, and (f) blood glucose for subjects 40 years of age and over.

At the time of the home visit, the nurse provided the family with forms on which each member was to record his 24-hour food intake. For children under 10 years of age, the mother did the recording. When the person came to the clinic, the nutritionist reviewed the dietary record for completeness and accuracy. The individual's food intake was compared with the basic food groups suggested by the National Research Council's recommended dietary allowances.[1] The nutritionist offered advice whenever this seemed desirable.

Each individual who attended the nutrition survey clinic was examined by a medical officer for physical signs which might be related to nutritional deficiencies. This information was then recorded on forms devised by the Nutrition Branch of the Public Health Service. The physical inspections followed the outline suggested by Sandstead and Anderson.[2]

Information about any obvious deficiencies found was given to a responsible member of each family; where necessary, individuals were referred to their family physician. A surprisingly large number of previously undiscovered physical defects, both of a nutritional and non-nutritional nature, such as rheumatic fever and dental caries, were brought under professional care as a result of this referral system. Physical defects were also reported to the local health officer who assigned each case to district public health nurses for home visits.

[1] Recommended Dietary Allowance. National Research Council, Reprint and Circular Series No. 122, Washington, D. C. 1945 revision.

[2] Sandstead, Harold R., and Anderson, Richmond K.: Nutrition studies. I. Description of physical signs possibly related to nutritional status. Pub. Health Rep. 62: 1073–1085 (1947). Reprint 2709.

In connection with the program, the nutrition unit attended weekly staff meetings of the local health department to discuss any problem which might arise.

The in-service education program for the county health department staff was begun in February 1947, prior to the beginning of the survey, and was continued at intervals during the entire program. The following subjects were discussed: food values and cost of milk and cereals in the diet, nutrition and blood regeneration, vitamins and vitamin deficiency diseases, methods of obtaining diet records, use and analysis of diet records, etc.

During the course of the survey, it was necessary to carry on a continuous campaign to maintain public interest and cooperation in the project. Various public information media were utilized for this purpose—newspapers, radio, clubs, groups and classes. The necessity for continuing public relations activities in connection with programs such as these serves to emphasize the need for the full-time participation of a health education specialist.

Survey Data of Nutritional Status

No attempt has been made in this report to give a complete analysis of all the data accumulated for the 2,551 individuals who participated in the survey. However, the figures included afford a picture of the nutritional status of the group which participated. Every attempt was made to obtain a representative sample of the population of Ottawa County. Analysis of the data indicate, however, that for the selected sample children responded to a proportionately greater extent than the older people.

Dietary Findings

The dietary information was analyzed to show the percent of individuals who ate the quantities of the basic food groups suggested by the National Research Council's recommended dietary allowances. Some of these results are:

Food group	*Percent reporting recommended intake*
Leafy, green and yellow vegetables	46
Vitamin C-rich foods	49
Other vegetables and fruits	68
Milk	40
Meat, poultry and fish	62
Eggs and cheese	55
Whole grain products	45
Enriched grain products	90
Iodized salt	46

Laboratory Findings

The results of the blood studies showed that 25 percent of the people had good or excellent hemoglobin levels according to the standards used (table 1). There were 79 percent of the cases in the good or excellent category for serum vitamin A (table 2), 43 percent in the same groups for serum carotene (table 3), 67 percent in these groups for serum ascorbic acid (table 4), 97 percent in the satisfactory group for plasma protein levels (table 5), and 92 percent of the cases satisfactory as far as blood phosphatase values were concerned (table 6).

Table 1. *Results of hemoglobin determinations on a representative sample of population, Ottawa County, Michigan, 1947–48*

Classification	Number subjects	Percent of total	Standards in gms./100 cc. whole blood		
			Male		Female total
			Below 13 yrs.	13 yrs. and over	
Total	2, 540	100. 0			
Poor	342	13. 4	Less than 11. 0	Less than 12. 0	Less than 11. 0
Fair	1, 577	62. 0	11. 0–12. 9	12. 0–13. 9	11. 0–12. 9
Good	468	18. 5	13. 0–13. 9	14. 0–14. 9	13. 0–13. 9
Excellent	153	6. 1	14. 0 and over	15. 0 and over	14. 0 and over

Table 2. *Results of blood serum vitamin A determinations on a representative sample of population, Ottawa County, Michigan, 1947–48*

Classification	Number subjects	Percent of total	Standards expressed in mcg./100 ml. serum
Total	2, 372	100. 0	
Poor	117	4. 9	Below 20
Fair	389	16. 4	20–29
Good	1, 233	52. 0	30–49
Excellent	633	26. 7	50 and over

Table 3. *Results of blood serum carotene determinations on a representative sample of population, Ottawa County, Michigan, 1947–48*

Classification	Number subjects	Percent of total	Standards expressed in mcg./100 ml. serum
Total	2, 378	100. 0	
Poor	312	13. 1	Below 75
Fair	1, 026	43. 2	75–124
Good	854	35. 9	125–199
Excellent	186	7. 8	200 and over

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As an adjunct to the nutrition survey, a screening program for diabetes was carried on. Blood glucose determinations were made on 550 individuals 40 years and over. Finger-tip blood was obtained for this test from one to three hours after the last meal. There were 89 persons who had blood glucose levels of 150 milligrams or more per 100 ml. of blood. These individuals were considered to be potential diabetics and were referred to their family physician for additional study.

Table 4. *Results of blood serum ascorbic acid determinations on a representative sample of population, Ottawa County, Michigan, 1947–48*

Classification	Number subjects	Percent of total	Standards expressed in mcg./100 ml. serum
Total	2,461	100.0	
Poor	246	9.9	Below 0.4
Fair	559	22.7	0.4–0.6
Good	574	23.4	0.7–1.0
Excellent	1,082	44.0	1.1 and over

Table 5. *Results of plasma protein determinations on a representative sample of population, Ottawa County, Michigan, 1947–48*

Classification	Number subjects	Percent of total	Standards expressed in gm./100 cc.
Total	2,320	100.0	
Poor	10	0.4	Under 6.0
Fair	59	2.5	6.0–6.4
Satisfactory	2,251	97.1	6.5 and over

Table 6. *Results of phosphatase determinations on individuals 16 years and under in a representative sample of population, Ottawa County, Michigan, 1947–48*

Classification	Number subjects	Percent of total	Standards expressed in ml. units
Total	1,091	100.0	
Satisfactory	1,004	92.0	Under 15
Unsatisfactory	87	8.0	15 and over

Physical Findings

In the survey, 2,551 persons were inspected for signs commonly associated with nutritional deficiencies. It should be recognized, however, that there are serious limitations to making positive diagnoses of deficiency states based solely on the evidence presented

through many of these signs. Physical signs were observed which are associated with a deficiency of the following food factors:

Vitamin A. Findings varied greatly for the physical signs reported to be associated with vitamin A deficiencies; 1.5 percent of the persons examined showed signs of follicular hyperkeratosis, 3.8 percent blepharitis, and 35.1 percent had thickening of the bulbar conjunctiva.

Vitamin B Complex. 18.3 percent of all the individuals who were examined had changes in the tongue which have been associated with vitamin B-complex deficiency states. Nasolabial seborrhea and follicular plugs appeared together in only 0.9 percent of the persons examined. Angular stomatitis was found in 0.9 percent of the individuals. Circumcorneal injection was present in 5.5 percent of the cases.

Ascorbic Acid. Gingivitis was present in 12.9 percent of the people examined. However, perifollicular petechiae were seen in only one individual and purpura in two persons.

Vitamin D. Skeletal changes, which are frequently attributed to the existence of rickets, were found in 23.0 percent of all the individuals examined; 23 percent of the individuals 16 years of age and under had three or more skeletal deformities which were probably of rachitic origin.

Iodine Deficiency. 11.3 percent of all the individuals examined had palpably enlarged thyroid glands.

Discussion of Survey Data

The survey data revealed that about half of the people surveyed did not secure as large amounts of basic foods as suggested in the National Research Council's recommended dietary allowances.

Because stigmata of rickets were discovered in many of the individuals examined, inquiries were made about the use of vitamin D supplements in this area. Physicians who were asked stated that they recommend vitamin D supplements for all infants under their care. Some parents felt that such supplements were harmful or unnecessary to the children during the warmer months of the year and, as a result, many children failed to receive supplementary vitamin D during these months.

There is insufficient use of iodized salt in this iodine-deficient area. The enlarged thyroids observed in these examinations might have been prevented by the more widespread use of iodized salt.

As explained earlier, the demonstration program in Ottawa County was to have been a comprehensive one, including both in-service training and educational and preventive measures as well as the nutrition survey. However, only the epidemiological survey was

carried through to its conclusion at the time the nutrition unit left this area. The preventive and correctional phase of the nutrition program was not completed because unforseen circumstances resulted in the termination of the cooperative program.

Epidemiological findings revealed that significant nutritional problems existed in Ottawa County despite the fact that it was a fairly prosperous area and was served by a well-organized health department. The in-service training program in nutrition was under way at the time the unit left the county; the majority of the staff of the local health department had become aware that nutrition was a public health problem and that a nutrition program should be on a par with other phases of the public health program.

Conclusions

1. It was demonstrated that an epidemiological unit in nutrition, such as the demonstration unit of the Public Health Service, can obtain valuable information about the nutritional status of various groups in the population.

2. The in-service training in nutrition provided for the staff of the Ottawa County Health Department was well received and created an active interest in the field of nutrition.

3. It was found that active participation by the local public health nurses in the nutrition survey did not unduly disrupt their generalized nursing program.

4. Public health nurses attached to the health department were very successful in the work of following up some of the more severe nutritional deficiency and other cases found in the survey clinics. As a result, many cases were brought under professional care.

5. The necessity for a continuing nutrition program, aimed toward the prevention and correction of the suboptimal nutritional conditions found in Ottawa County, was clearly shown in the results of the survey.

Oral Administration of Killed *Brucella* to Man

By Norman B. McCullough, Ph. D., M. D.*, C. Wesley Eisele, M. D.**, and Grace A. Beal**

Brucella agglutinins have been observed in many persons who have had no illness suggestive of brucellosis and no known adequate exposure to live *Brucella* organisms. It is also recognized that there is a high incidence of dermal sensitivity to *Brucella* products in the absence of a history of illness or exposure. This is true even among persons who have always lived in large cities and can give no history of raw milk consumption. The possibility occurs that the ingestion of dead *Brucella* in pasteurized dairy products may be responsible for the presence of *Brucella* agglutinins. The following experiments were designed to clarify this point.

Materials and Methods

Subjects. Healthy adult male volunteers at a State penal institution were the subjects. The milk used in this institution is pasteurized and obtained from a single source. In such a closed environment, the possibility of exposure other than that experimentally designed is practically nonexistent. Volunteers were carefully selected in reference to previous exposure history and residence. No individuals were included who had been employed as farmers, packing house workers, butchers, dairymen, or in similar occupations. Individuals who had received cholera vaccine were also rejected. The selected volunteers were then further screened by the use of the agglutination test, the opsonocytophagic test, and the brucellergen skin test. All individuals developing antibodies following this skin test were eliminated.

Subjects (except group III B) used in this experiment then were known to be free of detectable previously existing antibody, thus minimizing the possibility of confusion incident to fluctuation in titer of such antibody or the reappearance of latent antibody.

Material. A commercial heat-killed *Brucella* vaccine [1] consisting of equal parts of *Brucella abortus* and *Brucella suis* was used. The calculated daily dose was administered in a glass of pasteurized milk following the noon meal. The antigenicity of this vaccine was established by parenteral administration to a similarly selected control group of eight

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[1] We are indebted to Lederle Laboratories, Pearle River, N. Y., for a generous supply of this vaccine.

individuals, all of whom developed high agglutination titers against *Brucella* and marked opsonocytophagic responses.

Methods. The agglutination test was performed by the standard test-tube method with incubation at 37° C. for 48 hours. The antigen employed is routinely used in our laboratory. It is prepared from several recently isolated, smooth, virulent strains of *Brucella*. A photoelectric colorimeter is used for turbidimetric standardization. Each lot is further standardized by comparing its action with the preceding lot on selected antisera. The lowest dilution of serum used was 1 to 20. The opsonocytophagic test and the brucellergen skin test were performed according to Huddleson (*1*).

Experimental Procedure

Thirty volunteers were divided into three groups of 10 men each:

Group I received one million organisms per feeding.
Group II received 100 million organisms per feeding.
Group III received one billion organisms per feeding.

An additional group of 10 men was held as a control group.

In the initial experiment, feedings were given to all groups daily 6 days a week for a period of 6 weeks. Subsequently, the feeding periods of all groups were extended as detailed later. The *Brucella* agglutination and opsonocytophagic tests were performed at 2-week intervals during the feeding period and for 6 weeks thereafter. The skin test was repeated 6 weeks after the end of the feeding period, and agglutinins and opsonins were again followed after the skin test.

Since all of these tests remained completely negative, a further feeding was conducted. The same groups of men were continued at the same dosage levels with feedings given once a week for an additional 3 months. The total number of feedings was thereby brought to 49, scattered over a period of approximately 6 months.

An additional 12 individuals (group III B) were included in this experiment and given the highest dosage level (one billion organisms per feeding). Eight of these 12 had moderately positive brucellergen skin tests prior to their inclusion in the study. Four had a previous rise in agglutinins following a negative skin test. Hence, all 12 of these may be regarded as having latent antibody, although the agglutination and opsonocytophagic tests were negative at the start of the feeding.

As in the initial experiment, the agglutination and opsonocytophagic tests were performed at intervals during and after the feeding period. The brucellergen skin test was repeated 2 weeks after the end of feeding and the agglutination and opsonocytophagic tests repeated thereafter. Four months after the end of the feeding period, all three tests were again repeated.

Results

In the initial experiment consisting of 36 feedings over a period of 6 weeks, all individuals in the three experimental groups remained completely negative to all the tests detailed.

In the further feeding experiment, the results were as follows:

Group I. Seven of the 10 individuals completed the feeding period, 3 being dropped because of discharge from the institution. All seven of the individuals completing the feeding remained entirely negative to all tests. (One individual was not available at the 4-month post-feeding test.)

Group II. All of the individuals completed the feedings, and eight were available at the 4-month post-feeding test. They likewise remained negative to all the tests throughout.

Group III. All 10 individuals completed the feeding. Eight were available for testing at the 4-month post-feeding period. The agglutination test and the brucellergen skin test were completely negative at all times. At the end of the feeding period, three individuals showed slight to moderate opsonic activity which regressed to practically negative one month later.

Group III B. All 12 individuals completed the feedings. At the end of the feeding period and prior to repeating the skin tests, the agglutination tests were completely negative in all individuals. However, six men at this time showed demonstrable opsonic activity. One of these showed a fairly strong reaction. (Of 25 cells, 14 showed marked phagocytosis, 7 moderate, 4 slight, and none negative.) The four individuals whose skin tests were negative prior to the feeding remained negative at the end of the feeding period; in those previously positive, the degree of positivity was not increased afterwards. Following the repeat skin test, five individuals developed low agglutination titers of 1:20 or 1:40. At the 4-month post-feeding test, 11 men were available. The agglutination and opsonocytophagic tests were completely negative in all individuals at this time, and the brucellergen skin test response was unchanged.

The control group of 10 men was tested at the intervals detailed. With repeated testing and observation over the period of 10 months, all remained negative to all tests.

Discussion

It is apparent that prolonged feeding of killed *Brucella* to healthy individuals, even with maximum total doses of 49 billion organisms, failed to produce significant agglutination titers or dermal sensitivity. This is in accord with the results of previous workers (*2*). The maximal doses fed, but not the smaller doses, stimulated demonstrable

opsonic activity in nine individuals. Six of these men were in group III B which was regarded as having pre-existing latent antibody present, and hence might be expected to respond to a smaller antigenic stimulus than the other experimental subjects. The dosage levels selected are those which we believe might approximate natural conditions obtaining in pooled market milk as well as in milk drawn primarily from heavily infected herds.

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Recovery of *C. burnetii* from *H. savignyi* Collected in Spain

By R. R. Parker, Ph. D.,† Joaquin de Prada, M. D.,* E. J. Bell, D. Sc.,** and David B. Lackman, D. Sc.**

Two strains of *Coxiella burnetii* have been recovered from 16 adult specimens of *Hyalomma savignyi* collected April 25, 1949, from a sheep in the village of Bobeda, Province of Salamanca, Spain. This is the first proof of the occurrence of *C. burnetii* in that country, although its clinical presence has been suspected for some time by one of the authors (de Prada).

Test Data

The 16 specimens of *H. savignyi* were received at the Rocky Mountain Laboratory May 1, 1949. They were tested in two groups, one containing 4 living ticks, the other 12 dead specimens. Each group was soaked for 2 hours in merthiolate solution 1:1000, rinsed thoroughly in several changes of sterile distilled water, and triturated in 3 ml. of sterile saline solution. Of each resulting suspension, one guinea pig was injected with 1 ml. subcutaneously and another with 2 ml. intraperitoneally. A strain of *C. burnetii* was recovered from each group.

Both strains were maintained through two passages. The transfer inoculum in each instance was a saline suspension of spleen tissue from the sacrificed donor. Either two or four fresh guinea pigs

†Died Sept. 4, 1949. *Valladolid, Salamanca, Spain. **Rocky Mountain Laboratory, Hamilton, Mont.

were used. Each recipient was injected with 1 ml. of the suspension, half of the animals being injected subcutaneously and half intraperitoneally. Heart blood taken from each donor when sacrificed was bacteriologically sterile.

All surviving original and passage animals were tested for immunity against Q fever rickettsiae (Nine Mile strain). The challenge inoculum was like the inoculum used for strain passage except that the spleen tissue was from guinea pigs infected with a known strain of Q fever; each challenged animal received 1 ml. of suspension intraperitoneally. Six fresh control guinea pigs were similarly inoculated with each challenge inoculum; all reacted typically.

Test of Living Ticks

The guinea pig receiving the tick suspension subcutaneously was irregularly febrile from the 7th to the 19th day. It died following bleeding on the 29th day. Its serum was anticomplementary in the complement fixation test. The intraperitoneally injected animal became febrile on the 6th day and on the 8th day was sacrificed and material transferred to four animals.

One first-passage animal died of an intercurrent infection, and one was sacrificed on the 14th day (the 4th day of fever) and was transferred to four second-passage animals. Of the other two guinea pigs, one had 3 days of fever (12th to 14th), the other only one day (12th). Both were bled on the 21st day and both were positive for Q fever by the complement fixation test at serum dilutions of 1:64 and 1:128, respectively. One of these two animals died following bleeding; the other was immune to Q fever rickettsiae injected on the 34th day.

One second-passage animal was sacrificed on the 7th day (5th day of fever) and transferred to two third-passage guinea pigs. Another was sacrificed on the 9th day (3d day of fever); its spleen was frozen and placed under CO_2 refrigeration. The other two animals were both febrile (9th to 13th day and 7th to 9th day, respectively). Both were bled on the 21st day and both were positive for Q fever by the complement fixation test at a serum dilution of 1:512. They were also immune to Q fever rickettsiae injected the 21st day.

Results with the two third-passage animals were valueless because of intercurrent infection.

Test of Dead Ticks

Both tick-suspension-injected guinea pigs were febrile from the 9th to the 13th day. Blood taken the 29th day from the subcutaneously injected animal was positive for Q fever in the complement fixation test at a serum dilution $>1:256$. This guinea pig was challenged on the 34th day but died 7 days later of an intercurrent

infection. The intraperitoneally injected animal was sacrificed on the 17th day and material transferred to four guinea pigs.

Of the four first-passage animals, one of those injected subcutaneously was sacrificed on the 14th day (3d day of fever) and was transferred to two guinea pigs. Of the other three passage animals, one had 1 day of fever, another 2 days, and the third remained afebrile. On the 27th day, they were bled and then challenged. Each was positive in the complement fixation test (at serum dilution of 1:128 or greater) and each was also immune to Q fever.

In contrast to the first-passage animals, the two second-passage guinea pigs had marked febrile reactions which began the 6th day. Both were bled on the 15th day. The complement fixation test for the subcutaneously injected animal showed only a trace of fixation at 1:8. This animal died following bleeding; its spleen was enlarged three times, and there was a typical subcutaneous lesion. The intraperitoneally injected guinea pig was serologically positive at a dilution of $>1:256$ (bled 28th day) and was immune to the challenge inoculation given on the 49th day.

Discussion

The identification of the infectious agent isolated from the two groups of *H. savignyi* as *C. burnetii* is clearly justified by the positive complement fixation and immunity tests for Q fever.

Blanc et al. in 1946[1] reported the recovery of *C. burnetii* from ticks of this same species collected from the ground near the burrows of gerbils (*Meriones shawi*) in Southern Morocco. This strain was forwarded to the Rocky Mountain Laboratory in specimens of *Rhipicephalus sanguineus*. Although these ticks were dead and quite dry upon receipt in October 1946, the infectious agent was readily recovered from them, and complete cross-immunity was demonstrated between this Moroccan strain and American, Australian, Italian, and Panamanian strains of Q fever.

[1] Blanc, G., Martin, L.-A., and Maurice, A.: Sur une Rickettsia isolée de Tiques dans le Sud marocain. Son identité probable avec *R. burneti* agent de la Q fever. Compt. rend. Acad. d. Sci. 223: 438–439 (1946).

Laboratory Training Courses for 1950

The Communicable Disease Center of the Public Health Service has scheduled a series of training courses to be given during 1950 in the laboratory diagnosis of various diseases.

The 1- to 3-week courses planned for the year are:

Serological diagnosis of rickettsial diseases—Jan. 9–13; Identification of medically important arthropods—Feb. 13–24; Parasitic diseases: Part 1. Intestinal parasites—Mar. 27–Apr. 14; Part 2. Blood parasites—Apr. 17–May 5; Rabies—May 8–12; Bacterial diseases (directors)—May 22–26; Mycotic diseases (directors)—May 29–June 2; Tuberculosis (directors)—June 5–9; Parasitic diseases (directors)—June 12–14.

Mycotic diseases: Part 1. Cutaneous and subcutaneous fungi—July 24–Aug. 4; Part 2. Systemic fungi—Aug. 7–17; Tuberculosis—Aug. 21–Sept. 7; General bacteriology, Part 1—Sept. 11–22; General bacteriology, Part 2—Sept. 25–Oct. 6; Enteric diseases: Part 1. Introductory enteric bacteriology—Oct. 9–13; Part 2. Advanced enteric bacteriology—Oct. 16–27.

Parasitic diseases: Part 1. Intestinal parasites—Sept. 18–Oct. 6; Part 2. Blood parasites—Oct. 9–27; Identification of medically important arthropods—Nov. 13–24; Virus isolation and identification techniques—Nov. 13–17; Influenza—Nov. 20–24; Rabies—Nov. 27–Dec. 1.

Information and applications should be requested from the Chief, Laboratory Division, Communicable Disease Center, 291 Peachtree Street, N. E., Atlanta, Georgia.

Notifiable Diseases, Third Quarter, 1949[1]

The figures in the following table are the totals of the monthly morbidity reports received from Statehealth authorities for July, August, and September 1949, and show the numbers of cases reported by the required reporting sources in the respective States. They are preliminary and are subject to correction by final reports. They may be assumed to represent the civilian population only, although in some instances a few cases in the military population may be included. The comparisons made are with similar preliminary reports; but owing to population shifts in many States since the 1940 census, the figures for some States may not be comparable with those for prior years, especially for certain diseases. Each State health officer has been requested to include in the monthly report for his State all diseases that are required by law or regulation to be reported in the State, although some do not do so. The list of diseases required to be reported is not the same for each State. Only a few of the common communicable diseases are notifiable in all the States. In some instances cases are reported, in some States, of diseases that are not required by law or regulation to be reported and the figures are included although manifestly incomplete. There are also variations among the States in the degree of, and checks on, the completeness of reporting of cases of the notifiable diseases; therefore comparisons as between States may not be justified for certain diseases. As compared with the deaths, incomplete case reports are obvious for such diseases as malaria, pellagra, pneumonia, and tuberculosis, while in many States other diseases, such as cancer, puerperal septicemia, rheumatic fever, and Vincent's infection, are not reportable. However, the figures are recorded as reported.

In spite of these and other deficiencies inherent in morbidity reporting, these monthly reports, which are published quarterly and annually in consolidated form, have proved of value in presenting early information regarding the reported incidence of a large group of diseases and in indicating trends by providing a comparison with similar preliminary figures for prior years. The table gives a general picture of the geographic distribution of certain diseases, as the States are arranged by geographic areas.

Leaders are used in the table to indicate that no case of the disease was reported.

Consolidated monthly State morbidity reports for July, August, and September, 1949

Division and State	Anthrax	Chickenpox	Conjunctivitis[2]	Diphtheria*	Dysentery, amebic	Dysentery, bacillary	Dysentery, undefined	Encephalitis, infectious	German measles	Hookworm disease	Influenza	Malaria[3]	Measles*	Meningitis, meningococcal*	Mumps	Ophthalmia neonatorum	Pellagra	Pneumonia, all forms
NEW ENGLAND																		
Maine	---	174	---	3	---	---	---	---	44	---	12	1	149	3	240	---	---	95
New Hampshire	---	9	---	1	---	---	---	---	20	---	5	---	15	1	82	---	---	19
Vermont	---	91	---	---	---	---	---	---	27	---	---	---	109	---	261	---	---	2
Massachusetts	---	797	---	58	1	7	---	4	286	---	---	2	593	12	890	50	---	---
Rhode Island	---	24	---	1	---	---	---	---	8	---	8	1	47	1	80	---	---	35
Connecticut	---	124	8	2	6	2	---	1	53	1	2	---	612	7	343	---	---	272
MIDDLE ATLANTIC																		
New York	4	1,137	---	29	202	307	---	9	501	29	[4]2	14	2,481	39	1,149	5	---	1,555
New Jersey	---	759	---	10	28	12	2	10	241	---	23	15	1,401	18	839	1	---	488
Pennsylvania	3	638	---	39	12	9	---	9	206	---	13	1	2,167	53	1,139	2	---	579
EAST NORTH CENTRAL																		
Ohio	1	370	---	35	12	10	56	---	113	---	12	1	1,974	28	938	96	---	442
Indiana	---	49	---	126	---	7	7	13	12	---	54	3	230	4	88	---	---	67
Illinois	1	350	81	9	147	85	---	24	164	---	10	[5]3	1,010	39	698	62	---	775
Michigan	---	456	21	31	100	57	---	14	183	16	14	1	1,345	19	434	5	---	344
Wisconsin	---	804	---	1	2	---	---	3	208	---	152	2	1,703	6	965	1	---	[6]39
WEST NORTH CENTRAL																		

WEST NORTH CENTRAL																	
Minnesota		138		11	23	40	2	2		4	4	11	164	20				98
Iowa		83		4				6	10				169	6	235			12
Missouri		69		23			18	1			8	1	59	25	155			99
North Dakota		36		2	1			96			36		113	12				88
South Dakota		33		2				28					63	15	33			6
Nebraska		33		9	1			3			44		61	3	103			13
Kansas		147		7	2			1	9	2	27		170	2	223		1	78
SOUTH ATLANTIC																		
Delaware		12		1				1					29	3	11			2
Maryland		81		20	3	11	4		36		5	5	116	3	89			198
Dist. of Columbia		26		7		31							113	3				161
Virginia		169		34	11		3,390				1,076	9	803	21	205		1	374
West Virginia		12	1	40		1			3		77		119	15	59			28
North Carolina				129	40	22						31	399	14				
South Carolina				56	3	70			14	40	363	134	451	7	152	3	18	221
Georgia		35	15	109	12	97	4	5		819	72	31	255	16	145		20	395
Florida		45	[7]32	28	34	17		1	4	943	20	8	269	4	160	4		101
EAST SOUTH CENTRAL																		
Kentucky		34		59	2	19	4		11	15	1	7	181	22	24	2		180
Tennessee		48	2	36	35	79	43	6	9	5	161	16	257	23	192	1	4	397
Alabama		25		74	3				4		60	57	230	14	139		3	240
Mississippi				108	39	76		4		528		46	103	6		18		169
WEST SOUTH CENTRAL																		
Arkansas		10		34	48	254	246	1	3	1	203	147	155	7	92	1	1	150
Louisiana		9		27	245	3		1	1	97	12	5	49	4	143	2		240
Oklahoma		27		18	7	10	19	4	18		125	34	256	6	174	1	8	170
Texas		361		174	217	6,854	2,939	11				987	971	62	1,416	14		2,261
MOUNTAIN																		
Montana		171	6	5		6	2	2	54		29		306	3	72			18
Idaho		42	13	7	1	11	1		38		65		212		43			25
Wyoming		22		2					5				27	3	31			36
Colorado		127		7	4	26		32	49		120	2	275	17	152	1		130
New Mexico		27	1	8	15	17	13	1	7		4		120	1	26			97
Arizona		50		19	63	586	8	3	40		210		147	3	184	3		63
Utah		315		1	19		1		32		3		292	1	157			24
Nevada		20	21	1	2			1			11		16	4	1			3
PACIFIC																		
Washington		440	14	5	21	6	39		103		24		431	8	323			146
Oregon		349	6	1	18	35	145	2					423	2	238			133
California		1,746		100	61	154		15	530		45	10	1,495	47	3,481			[6]308
Total	9	10,524	221	1,513	1,440	8,921	6,943	314	3,046	2,500	3,112	1,585	23,135	632	16,604	272	56	11,376
Third quarter 1948	5	12,362	179	1,740	1,269	7,109	4,042	226	1,781	2,799	5,888	4,067	40,449	618	18,471	323	230	11,086
Median 1944–48	12	13,421	179	2,918	1,044	7,109	4,042	289	2,151	3,479	11,782	15,899	19,452	829	14,969	536	1,007	13,044
Alaska		56		1					16		5		33		13			15
Territory of Hawaii		195	20	1	6	32			19	1	3	141	129	1	159			[6]15
Panama Canal Zone [8]		68		12	21	17			2			243	8		4			[6]59

See footnotes on p. 1624.

Consolidated monthly State morbidity reports for July, August, and September, 1949—Continued

Division and State	Poliomyelitis*	Rabies in man	Rheumatic fever	Rocky Mt. spotted fever	Scarlet fever*	Septic sore throat	Small pox*	Tetanus	Trachoma	Trichinosis	Tuberculosis, all forms*	Tuberculosis, respiratory	Tularemia	Typhoid fever*	Paratyphoid fever	Typhus fever, endemic	Undulant fever*	Vincent's infection	Whooping Cough*
NEW ENGLAND																			
Maine	357				31	10		1			122	102		3	1				123
New Hampshire	199				5	17					39						2	6	48
Vermont	101				20	2								1					39
Massachusetts	1,426				213	18		4	1	9	729	701		10	86		8		1,329
Rhode Island	127		6		10	12					135	128			1		1		43
Connecticut	437				36	64		5			327	300		13			5		421
MIDDLE ATLANTIC																			
New York	4,037			9	[10] 325	[11]		11		28	3,595	3,304	1	55	[12] 28	2	40		2,537
New Jersey	1,039			6	77	15		6		4	654		1	19	2		6		1,154
Pennsylvania	520		138	12	190			2		6	1,182		2	90	[12] 8	1	[13] 29		1,495
EAST NORTH CENTRAL																			
Ohio	1,427		21	5	339	5		5		13			4	73	13		40	2	1,091
Indiana	840		3	5	77	38		4		1	553	502	1	15	2		17	1	255
Illinois	2,320		63	8	155	84		11		1	2,147	2,013	6	44	2		116	22	1,497
Michigan	2,233		104		290	84		7	1		1,731		1	18	[12] 11	1	47		1,335
Wisconsin	837				98	18			1		578			1	1		44		1,050
WEST NORTH CENTRAL																			
Minnesota	1,461		25	1	73	17		2			585			7	[12] 8		74		39
Iowa	847			1	29						256		1		1		159		56
Missouri	1,077		1		49	2		3	159		624		26	45			51		75
North Dakota	399		1		15	1					62	55			1		13	4	38
South Dakota	273				14			1	10		99			3	1		14	2	13
Nebraska	463				[10] 135	[11]				1	90	35		7			13	1	30
Kansas	555		1	1	49	8					181	177	1	9			21	11	104
SOUTH ATLANTIC																			
Delaware	28			2	8						63	63		3			1		66
Maryland	158		18	23	43	9		5			637	615	3	17	1		16	1	400
District of Columbia	74			1	15			1		1				4	4				29
Virginia	235		2	67	114	514		5			845	823	15	49	13	2	26		327
West Virginia	264		10	3	77	34					637	633		39	1		3		203
North Carolina	137			55	209	2					819	779	8	23	1	12	10		370
South Carolina	63		18	4	24	198		5					6	22	5	6	5		50
Georgia	127		13	8	71	56		11			770	737	12	62	25	92	40	5	40
Florida	123				27	18		25	(?)		837		9	13	[12] 30	41	18	20	31

EAST SOUTH CENTRAL																		
Kentucky	475	1	5	12	157	28	2	3	29	------	587	581	2	64	7	2	14	------	331
Tennessee	386	------	28	18	169	41	------	7	------	------	1,492	------	7	75	10	8	11	30	384
Alabama	147	------	------	5	80	------	------	17	------	------	681	------	1	28	4	36	18	------	131
Mississippi	219	1	13	1	63	------	------	10	------	------	719	697	10	33	1	5	21	------	55
WEST SOUTH CENTRAL																			
Arkansas	715	------	1	8	35	468	------	5	25	------	535	527	90	62	2	7	11	------	257
Louisiana	136	------	10	------	25	4	------	12	------	------	754	726	4	52	15	40	9	------	17
Oklahoma	899	------	13	14	25	83	------	4	66	------	677	662	31	34	5	------	50	39	75
Texas	1,208	------	------	4	107	1,246	------	------	16	------	1,292	------	19	112	21	79	97	------	1,384
MOUNTAIN																			
Montana	65	------	1	2	20	20	1	------	------	------	131	130	6	6	------	------	------	4	29
Idaho	326	------	7	1	12	83	1	1	1	------	122	------	1	10	8	------	6	6	63
Wyoming	84	------	16	6	2	------	------	------	------	------	32	31	12	3	1	------	3	1	2
Colorado	505	------	23	6	41	121	------	------	------	------	826	------	2	12	7	------	31	21	99
New Mexico	124	1	15	1	16	6	------	------	5	------	[14] 276	[14] 264	------	21	1	1	------	------	33
Arizona	109	------	15	------	17	245	------	1	81	------	554	527	------	10	------	------	4	------	127
Utah	140	------	21	9	12	6	------	------	------	------	[14] 30	[14] 28	16	2	[13] 2	------	23	2	314
Nevada	12	------	------	------	2	24	------	------	2	------	9	------	------	1	------	------	1	6	48
PACIFIC																			
Washington	384	------	48	------	114	18	------	2	------	------	332	------	2	1	[12] 10	------	8	38	223
Oregon	134	------	18	1	43	53	------	------	2	------	174	159	5	5	------	------	11	------	326
California	1,402	------	161	1	288	47	------	20	6	7	2,186	2,043	3	38	228	3	34	------	1,482
Total	29,654	3	819	300	4,046	3,719	4	196	405	71	29,706	17,342	308	1,214	568	338	1,171	222	19,668
Third quarter 1948	16,678	8	899	308	5,659	4,673	9	206	744	114	33,484	19,511	267	1,054	341	423	1,423	254	13,114
Median 1944–48	13,530	9	[16] 842	308	8,887	2,051	33	154	372	86	32,577	18,076	266	1,349	353	1,357	1,423	484	30,308
Alaska	------	------	8	------	------	27	------	------	------	------	237	237	------	1	------	------	------	------	1
Hawaii Territory	4	------	1	------	1	3	------	1	------	2	195	171	------	2	------	7	1	------	[9] 16
Panama Canal Zone [1]	4	------	------	------	------	------	------	3	------	------	[9] 8	------	------	3	------	6	------	------	

[1] See footnotes on page 1624.

Footnotes for table on pages 1620 to 1623

*On the basis of information in the latest compilation of the reportable diseases in the several States (Pub. Health Rep. 59:317-340 (1944) Reprint 2544), diseases marked with an (*) are reportable by law or regulation in all States and the District of Columbia. Typhoid fever is reportable in all States, and paratyphoid fever in all but 6 States. A few States have begun to report paratyphoid fever as "salmonellosis." Syphilis is reportable in all States but is not included in the table, as more complete reports are issued later by the Division of Venereal Disease Control. Some States have increased and some have reduced the list of reportable diseases since the latest compilation cited above.

[1] For first quarter report see Pub. Health Rep. 64: 927 (1949); second quarter, ibid.: p. 1306.

[2] Includes cases of kerato- and suppurative conjunctivitis and of pink eye.

[3] In a few States practically all cases contracted outside continental United States.

[4] New York City only.

[5] Exclusive of 6 cases of artificially induced malaria.

[6] Lobar pneumonia only.

[7] Corrected report from Florida states that the 20 cases of trachoma reported in that State January-June 1949 were conjunctivitis (Pub. Health Rep. 64: 930; ibid.: 1308).

[8] Includes the cities of Colon and Panama.

[9] In the Canal Zone only.

[10] Includes septic sore throat.

[11] Included in scarlet fever.

[12] Includes cases reported as salmonella infections.

[13] Reported as salmonella infections.

[14] Includes nonresident cases.

[15] Corrected report from Pennsylvania for the month of June 1949, reduces the total number of cases of undulant fever reported from that State for the second quarter of 1949 from 197 to 34 (see Pub. Health Rep. 64: 1308 (1949). This difference is due to erroneous report of 163 cases in Philadelphia for the month of June.

[16] 3-year median 1946-48.

The following list includes certain rare conditions, diseases of restricted geographical distribution, and those reportable in or reported by only a few States; last year's figures in parentheses (where no figures are given, no cases were reported last year, or the disease was not included in last year's published tabulation):

Actinomycosis: Pennsylvania 1, Michigan 1, Minnesota 1 (2), South Dakota 1.

Botulism: California 2.

Cancer: Pennsylvania 2,021, North Dakota 161 (231), Kansas 960 (981), South Carolina 110 (369), Georgia 73 (56), Florida 477 (451), Kentucky 10 (2), Tennessee 866 (643), Alabama 1,089 (1,013) Arkansas 233 (184), Louisiana 585 (648), Montana 445 (287), Idaho 142 (202), Wyoming 97, Utah 78 (65) includes nonresidents, Colorado 778, New Mexico 172 (184), Nevada 1.

Coccidioidomycosis: Arizona 28 (5), California 14 (19).

Colorado tick fever: Wyoming 3, Colorado 30 (15), Utah 2.

Dengue: South Carolina 2 (2), Georgia 1, Texas 2 (10).

Dermatitis: New Hampshire 4 (12), Missouri 9 (7), Kentucky 4 (41) mycotic dermatitis, New Mexico 8.

Diarrhea: New York 55, Pennsylvania 34 (58) includes gastroenteritis, Ohio 1,251 (738) includes enteritis, Indiana 2 (2) includes enteritis, Illinois 28 (16), Michigan 13 (24), Minnesota 22, Maryland 22 (10), West Virginia 1, South Carolina 889 (4,206), Florida 33 (36), Kentucky 13 includes gastroenteritis, Oklahoma 1 (1), Texas 1,609, Montana 1, Idaho 71 (13) includes gastroenteritis, Wyoming 1, New Mexico 131 (103), Nevada 42 (1) enteritis, Washington 1 (6), California 16 (8), Alaska 35 (6) includes enteritis.

Dog bite: Massachusetts 3,563 (3,723), Pennsylvania 1,909 all animal bites, Illinois 4,711 (5,221) all animal bites, Michigan 2,970 (3,432), Arkansas 160 (177) all animal bites.

Encephalitis, other forms: New York 1, Ohio 6 (1), Maryland 2 (5), Montana 2, Colorado 11 (4), New Mexico 1 (2), Washington 1.

Erysipelas: Vermont 1 (1), Connecticut 2 (4) Pennsylvania 7, Ohio 5 (10), Indiana 4 (2), Illinois 31 (17), Michigan 11 (12), Wisconsin 5 (5), Minnesota 1, Iowa 1, Missouri 3, Kansas 1 (2), Maryland 1 (4), Florida 3 (17), Tennessee 6 (11), Arkansas 4 (5), Louisiana 2 (3), Montana 5 (3) Idaho 1 (7), Wyoming 1, Colorado 2 (11), Washington 1 (2), Oregon 6 (9), Hawaii Territory 1 (4).

Favus: Kansas 1.

Food poisoning: New York 60 (161), New Jersey 5, Ohio 15, Indiana 10 (6), Illinois 38 (6), Minnesota 3 (78), Iowa 13, Oklahoma 14, Montana 2, Idaho 13 (6), New Mexico 2 (8), Washington 12 (12), Oregon 4 (5), California 44 (110).

Histoplasmosis: Minnesota 1, Tennessee 1.

Impetigo contagiosa: New York 21 (45), Ohio 146 (40), Indiana 13 (27), Illinois 3 (13), Michigan 193 (196), Missouri 8 (10), North Dakota 5 (17), Kansas 15 (11), Maryland 1 (2), Kentucky 15 (13), Montana 4 (4), Idaho 7 (4), Colorado 24 (5), Nevada 29 (41), Washington 161 (113), Alaska 5 (9), Hawaii Territory 6 (9).

Jaundice (including hepatitis and Weil's disease): Maine 3 (2), Connecticut 4 (1), New York 70 (35), Pennsylvania 104 (16), Indiana 1, Illinois 5 (3), Michigan 4 (4), Maryland 2 (2), Florida 2 (5), Kentucky 3 (13), Tennessee 14 (7), Montana 4 (2), Wyoming 6, Arizona 2, Nevada 1 (1), Washington 2 (3), Oregon 9 (5), California 56 (25), Panama Canal Zone 8 (5).

Lead poisoning: New Mexico 1.

Leprosy: New York City 3 (1), Minnesota 1, Texas 2 (4), Arizona 1, California 5 (2), Hawaii Territory 2 (4), Panama Canal Zone 3.

Lymphocytic choriomeningitis: Indiana 1, Minnesota 1 (1), Tennessee 9 (5) choriomeningitis undefined.

Mononucleosis: Connecticut 38 (27), Pennsylvania 1, Michigan 3 (11), Minnesota 118 (67), Maryland 1 (12), South Carolina 7, Kentucky 2 (1), Tennessee 9 (4), Oklahoma 1, Idaho 10 (3), Washington 6.

Plague (human): New Mexico 2.

Psittacosis: California 1 (1).

Puerperal septicemia: Pennsylvania 3, Mississippi 2 (1), Nevada 1.

"Q" fever: Arizona 1.

Rabies in animals. New York 155 (114), New Jersey 6, Ohio 96 (120), Indiana 133 (173), Illinois 7 (22), Michigan 38 (100), Wisconsin 3 (2), Minnesota 2 (2), Iowa 49 (8). Kansas 4 (5), Virginia 19 (35), South Carolina 37 (46), Georgia 87 (65), Florida 10 (26), Kentucky 96 (79), Alabama 71 (82), Arkansas 17 (15), Louisiana 11 (8), Oklahoma 30 (35), Texas 160 (245), Colorado 4, New Mexico 1, Arizona 3 (5), California 27 (44).

Rat-bite fever: Georgia 1.

Relapsing fever: Texas 9 (35), Nevada 1 (1), California 5 (4), Panama Canal Zone 2 (5).

Rickettsialpox: New York City 20 (52).

Ringworm (including ringworm of the scalp): Connecticut 26 (8), Ohio 42 (22), Indiana 5 (9), Illinois 53 (79), Michigan 162 (162), Minnesota 4 (12), Iowa 1, Missouri 1 (12), Kansas 1 (8), Virginia 47, South Carolina 4, Georgia 45, Kentucky 44 (17), Arkansas 1 (1), Oklahoma 5, Montana 1, Idaho 9 (11), Wyoming 1, Colorado 8, Utah 2 (4), Washington 142 (7), Oregon 33 (1).

Scabies: Ohio 14 (20), Michigan 94 (125), Missouri 3 (7), Kansas 2, Kentucky 24 (5), Montana 1 (15), Idaho 4 (9), Wyoming 5 (5), Nevada 2 (2).

Schistosomiasis: New York City 10 (1).

Silicosis: Arkansas 2 (1), Idaho 2, New Mexico 4 (7), Utah 1.

Yaws: Panama Canal Zone 8 (3).

Yellow fever: Panama Canal Zone 3 deaths.

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED NOVEMBER 26, 1949

For the fourteenth consecutive week, total reported incidence of poliomyelitis in the Nation decreased over the preceding week. The total number of cases reported for the current week is 506 as compared with 735 last week, and 524 for the corresponding period last year. The 5-year (1944–48) median for the forty-seventh week is 229.

Thirty-five States reported an aggregate decrease of 286 cases of poliomyelitis, ranging from 1 in 5 States to 43 in New York. Ten States and the District of Columbia reported an aggregate increase of 57 cases, ranging from 1 case each in the District of Columbia and Delaware to 27 in Iowa. The figure for Iowa is the largest since the week ended October 1 when 56 cases were recorded. The total number of cases reported to date is 41,028 as compared with 26,215 for the corresponding week last year, and a 5-year median of 18,712.

No unusual incidence was reported in the Nation for the leading communicable diseases. One case of psittacosis was reported in California and one case of smallpox was reported in North Carolina. No cases of anthrax were reported. Diphtheria, influenza, measles, meningococcal meningitis, scarlet fever, typhoid fever, whooping cough, encephalitis, and tularemia decreased from the number reported last week. In addition, these diseases were below the 5-year median (1944–48) for the current week. Three cases of Rocky Mountain spotted fever were reported as compared with two cases last week.

Of 33 States reporting on rabies in animals, 17 reported no cases, while the remaining 16 reported a total of 87. The States reporting the largest numbers were Texas (22) and New York (13). The total to date is 5,103.

A total of 8,817 deaths was recorded during the week in 94 large cities in the United States, as compared with 9,874 last week; 8,557 and 8,987, respectively, for the corresponding weeks of 1948 and 1947; and 8,611 for the 3-year (1946–48) median. For the year to date the total is 429,906, as compared with 430,509 for the same period last year. Infant deaths for the current week totaled 615; for last week, 686, for the corresponding week last year, 599; and for the 3-year median, 650. The cumulative figure is 30,680 as compared with 31,282 for the same period last year.

Telegraphic case reports from State health officers for the week ended Nov. 26, 1949

(Leaders indicate that no cases were reported)

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis, meningococcal	Pneumonia	Poliomyelitis	Rocky Mt. spotted fever	Scarlet fever	Smallpox	Tularemia	Typhoid and paratyphoid fever [1]	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine				54		15	6		3				17	
New Hampshire									2				39	
Vermont									7				10	
Massachusetts	4			34	1		11		57				155	
Rhode Island				1		5	8		4				9	
Connecticut				10		29	14		11				110	
MIDDLE ATLANTIC														
New York	7	2		68	2	176	55		[2] 70			3	242	13
New Jersey			4	28	6	37	14		20			1	130	
Pennsylvania	4			41	8	60	13		49			2	176	1
EAST NORTH CENTRAL														
Ohio	8			25		65	25		118			4	109	8
Indiana	7		10	24	1	13	12		31				29	8
Illinois			5	22	4	70	27		35		4	3	58	3
Michigan [3]	1	1		155	1	29	32		57			1	178	4
Wisconsin			9	43	2	9	21		38			1	155	
WEST NORTH CENTRAL														
Minnesota	2			21	2	12	13		20				1	
Iowa				77		2	50		16			1	5	4
Missouri	4			5	2	29	1		11			6	11	
North Dakota		1	12	7			1		6				3	
South Dakota				9			3		2				8	
Nebraska			8	18		1	5		10					
Kansas	1			3		18	18		25				7	4
SOUTH ATLANTIC														
Delaware				1			1		1				4	
Maryland [3]	1	1	1	12	1	32	2	1	12		1		26	
District of Columbia	3			18		17	2		10			2	1	
Virginia	7		129	8	1	50	2		37			3	6	1
West Virginia	6		21	7		3			11				5	
North Carolina	15	1		41	1		3		97	1		1	64	
South Carolina	11		11	7		7	4		11				6	2
Georgia	19		10	2	1	24	4		38				6	3
Florida	8		7	3		5	4		4		1	1		1

EAST SOUTH CENTRAL														
Kentucky	15	----------	2	67	1	7	4	----------	76	----------	1	1	45	6
Tennessee	23	----------	7	6	3	33	2	----------	41	----------	----------	----------	12	----------
Alabama	12	----------	31	----------	6	27	1	----------	19	----------	----------	1	39	5
Mississippi [1]	18	----------	7	13	2	----------	----------	----------	11	----------	----------	2	2	----------
WEST SOUTH CENTRAL														
Arkansas	6	----------	50	2	----------	26	5	----------	6	----------	----------	2	5	----------
Louisiana	12	----------	1	4	1	29	----------	----------	3	----------	----------	2	5	----------
Oklahoma	3	1	54	1	2	21	15	1	14	----------	----------	1	9	----------
Texas	25	1	1,445	37	4	287	32	----------	41	----------	2	4	74	22
MOUNTAIN														
Montana	----------	----------	3	56	----------	----------	4	----------	11	----------	----------	----------	3	----------
Idaho	----------	----------	22	4	1	6	10	1	7	----------	----------	----------	1	----------
Wyoming	----------	----------	----------	3	----------	3	----------	----------	----------	----------	----------	----------	2	----------
Colorado	3	----------	20	21	1	12	10	----------	7	----------	----------	----------	10	2
New Mexico	----------	----------	----------	14	----------	6	2	----------	2	----------	----------	1	1	----------
Arizona	2	----------	113	18	----------	13	----------	----------	----------	----------	----------	----------	18	----------
Utah [2]	----------	----------	----------	69	----------	2	2	----------	4	----------	----------	----------	4	----------
Nevada	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
PACIFIC														
Washington	2	----------	----------	133	1	3	5	----------	46	----------	----------	----------	22	----------
Oregon	1	----------	11	26	----------	21	13	----------	11	----------	----------	----------	6	----------
California	10	----------	4	68	3	25	50	----------	71	----------	----------	3	76	----------
Total	240	8	1,997	1,286	58	1,229	506	3	1,183	1	9	46	1,904	----------
Median, 1944–48	396	9	2,167	1,936	74	----------	229	2	2,011	5	21	59	2,111	----------
Year to date, 47 weeks	7,178	716	94,351	597,460	3,090	69,868	[4] 41,028	558	68,468	46	1,003	3,417	59,303	----------
Median, 1944–48	12,164	587	209,166	572,953	5,332	----------	18,712	519	102,994	320	861	3,785	89,685	----------
	(27th)		(30th)	(35th)	(37th)		(11th)		(32nd)	(35th)		(11th)	(39th)	
Seasonal low week ends	July 9	----------	July 30	Sept. 3	Sept. 17	----------	Mar. 19	----------	Aug. 13	Sept. 3	----------	Mar. 19	Oct. 1	----------
Since seasonal low week	3,410	----------	18,484	8,942	574	----------	[4] 40,113	----------	10,208	5	----------	2,957	12,701	----------
Median, 1944–45 to 1948–49 [5]	5,834	----------	19,245	12,596	666	----------	18,449	----------	16,699	45	----------	3,310	13,810	----------

[1] Including paratyphoid fever currently reported separately as follows: Michigan 1, Iowa 1, Alabama 1, Arkansas 1, Texas 1, California 3. Cases reported as salmonella infection not included in the table were as follows: Pennsylvania 1.
[2] Including cases reported as streptococcal sore throat.
[3] Period ended earlier than Saturday.
[4] Deduction: Michigan, week ended August 27, 1 case.
[5] The median of the 5 preceding corresponding periods (1944–45 to 1948–49).

Psittacosis: California 1 case.
Alaska: Measles 5, whooping cough 1.
Hawaii Territory: Influenza 246, measles 1.

DEATHS DURING WEEK ENDED NOV. 26, 1949

	Week ended Nov. 26, 1949	Corresponding week, 1948
Data for 94 large cities of the United States:		
Total deaths	8,817	8,557
Median for 3 prior years	8,611	
Total deaths, first 47 weeks of year	429,906	430,509
Deaths under 1 year of age	615	590
Median for 3 prior years	650	
Deaths under 1 year of age, first 47 weeks of year	30,680	31,282
Data from industrial insurance companies:		
Policies in force	70,023,632	70,795,704
Number of death claims	10,854	9,907
Death claims per 1,000 policies in force, annual rate	8.1	7.3
Death claims per 1,000 policies, first 47 weeks of year, annual rate	9.1	9.2

TERRITORIES AND POSSESSIONS

Hawaii Territory

Plague (rodent).—Under date of November 18, 1949, plague infection was reported proved in 1 rat found dead three quarters of a mile west of Honakaa Village, Hamakua District, Island of Hawaii, on November 1, 1949.

FOREIGN REPORTS

CANADA

Provinces—Notifiable diseases—Week ended November 12, 1949.—Cases of certain notifiable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox			17		135	207	42	16	61	60	538
Diphtheria					16	4					20
Dysentery:											
Amebic						1					1
Bacillary						2	1		1		4
Encephalitis, infectious							2				2
German measles					8	11			13	9	41
Influenza			17			9	2				28
Measles			82		137	43	65	89	49	231	696
Meningitis, meningococcal						1					1
Mumps			73		54	160	5	6	12	110	420
Poliomyelitis			1	2	3	4	3			2	15
Scarlet fever	7		3	3	30	30	15	1	44	19	152
Tuberculosis (all forms)	6		4	11	72	22	23	11		18	167
Typhoid and paratyphoid fever					6					2	8
Undulant fever					2					1	3
Venereal diseases:											
Gonorrhea	7		7	17	105	64	22	7	39	70	338
Syphilis	4		3	6	57	48	9	3	1	9	140
Whooping cough	1		37		88	47		8	2	5	188

NORWAY

Notifiable diseases—August 1949.—During the month of August 1949, cases of certain notifiable diseases were reported in Norway as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	13	Mumps	138
Diphtheria	24	Paratyphoid fever	3
Encephalitis, epidemic	5	Pneumonia (all forms)	1,159
Erysipelas	314	Poliomyelitis	21
Gastroenteritis	3,978	Rheumatic fever	102
Gonorrhea	355	Scabies	1,409
Hepatitis, epidemic	103	Scarlet fever	271
Impetigo contagiosa	2,271	Syphilis	57
Influenza	1,122	Tuberculosis (all forms)	269
Laryngitis	6,078	Typhoid fever	2
Malaria	3	Whooping cough	4,853
Measles	755		

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

Note.—The following reports include only items of unusual incidence or of special interest and the occurrence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Cholera

Ceylon.—During the week ended November 19, 1949, 10 cases of cholera (suspected) with 2 deaths were reported in Eastern Province, Ceylon.

Plague

China—Chahar Province.—During the month of October 1949, 49 deaths from plague were reported in Chabar Province, China.

Ecuador—Loja Province.—During the period October 1–15, 1949, 1 fatal case of plague was reported at Cangonama Grande, Sozoranga Parish, Macara County, Loja Province, Ecuador.

Netherlands Indies—Java—Jogjakarta.—For the week ended November 12, 1949, 9 cases of plague, all fatal, were reported in the city of Jogjakarta, Java.

Union of South Africa—Cape Province.—During the week ended November 1, 1949, 1 case of plague was reported at Kamquip Farm in Gordonia District, Cape Province, Union of South Africa.

Smallpox

Algeria.—During the period October 1–20, 1949, 25 cases of smallpox were reported in Algeria.

Belgian Congo.—For the period October 9–29, 1949, 124 cases of smallpox (including *alastrim*) were reported in Belgian Congo.

Niger Territory.—During the period October 21–31, 1949, 100 cases of smallpox, with 11 deaths, were reported in Niger Territory.

Peru.—For the month of August 1949, 1,083 cases of smallpox were reported in Peru, of which 781 cases were reported in Cajamarca Department.

Typhus Fever

Ethiopia.—During the period September 6–26, 1949, 24 cases of typhus fever, with 3 deaths, were reported in Ethiopia.

Peru.—During the month of August 1949, 155 cases of typhus fever were reported in Peru, including 6 cases in Arequipa.

Yellow Fever

Brazil—Acre Territory.—On March 24, 1949, 1 death from yellow fever was reported in Feijo, Feijo County, Acre Territory, Brazil.

Peru—Cuzco Department.—On August 24, 1949, 1 death from yellow fever was reported in Quincemil, Cuzco Department, Peru.

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It contains (1) current information regarding the incidence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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